Ploidy status of progeny from the crosses between tetraploid males and diploid females in mud loach (*Misgurnus mizolepis*)

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DNA content of the sperm of tetraploid mud loach (*Misgurnus mizolepis*) males and the ploidy status of progenies generated by crossing tetraploid males with diploid females are described. Reproductive performance of the induced adult tetraploid males ranged from sterility to fertility. Of 48 tetraploid males tested, 12 were sterile but the other 36 produced functional sperm. Of these 36, 26 produced haploid sperm, which on fertilizing the haploid eggs, generated diploid progenies. Seven tetraploid males were mosaics in their sperm, as indicated by the production of diploid, aneuploid and/or triploid offspring. Only 3 males produced diploid sperm rendering the production of all-triploid progenies. The DNA content of sperm of a tested tetraploid male was consistent throughout the 3 progeny tests, i.e. the haploid sperm-producing 4n males persisted to produce the haploid sperm only likewise the diploid sperm producing4n males consistently produced the diploid sperm only, when progeny testing was extended to 3 successive but alternate years. Hence, a careful and direct examination of the DNA profile of sperm from tetraploid males is a pre-requisite for reproductive containment of genetically modified fish.

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